

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

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217 1. A skate frame for an in-line skate, the skate having a shoe portion and a plurality of wheels capable of traversing a surface, the skate frame comprising:

(a) an elongate first structural member having first and second sidewalls depending downwardly from a first upper surface, the lower ends of the sidewalls being spaced to receive the wheels therebetween; and

(b) vibration dampening means integrally formed with the sidewalls of the first structural member for absorbing at least a portion of vibrational energy transmitted from the surface to the shoe portion when the skate traverses the surface.

2. The skate frame of Claim 1, wherein the vibration dampening means comprises a contoured portion of each of the first and second sidewalls of the first structural member, the contoured portion having a predetermined cross sectional shape to permit the sidewalls to flex, thereby absorbing at least a portion of the vibrational energy associated with traversing the surface.

3. The skate frame of Claim 2, wherein the cross sectional shape of the first and second sidewalls is substantially arcuate, such that the contoured portion of the sidewalls flexes to absorb at least a portion of the vibrational energy.

4. The skate frame of Claim 3, wherein the arcuate cross sectional shape of the first and second sidewalls is substantially C-shaped in configuration, the arcuate cross sectional shape having an upper end spaced from a lower end by a concave portion.

5. The skate frame of Claim 4, wherein the concave portion of the first sidewall faces the concave portion of the second sidewall in an opposed manner, such that the first structural member is tubular.

6. The skate frame of Claim 1, further comprising a second structural member having first and second sidewalls held in spaced parallel disposition by a second upper wall, the second structural member having an open lower end sized to receive the wheels therebetween, the second structural member having a width sized

to be received within the first structural member such that the sidewalls of the first structural member overlap at least a portion of the sidewalls of the second structural member.

Sub 227. The skate frame of Claim 6, wherein the vibration dampening means comprises a contoured portion of each of the first and second sidewalls of the first structural member, the contoured portion having a predetermined cross sectional shape to permit the sidewalls to flex, thereby absorbing at least a portion of the vibrational energy associated with traversing the surface.

8. The skate frame of Claim 7, wherein the cross sectional shape of the sidewalls of the first and second structural members is substantially arcuate, such that the arcuate cross sectional shape of the sidewalls flexes to absorb at least a portion of the vibrational energy, wherein the arcuate cross sectional shape of the first and second sidewalls is substantially C-shaped in configuration, the arcuate cross sectional shape of each sidewall has an upper end spaced from a lower end by a concave portion.

9. The skate frame of Claim 8, wherein the concave portion of the first sidewall of the first and second structural members faces the concave portion of the second sidewall of the first and second structural members in an opposed manner.

10. The skate frame of Claim 9, further comprising an elastomeric shear layer disposed between the first and second structural members when the first structural member is received within the second structural member, the shear layer absorbs at least a portion of the vibrational energy transmitted from the surface to the shoe portion when the skate traverses the surface.

11. The skate frame of Claim 6, further comprising an elastomeric shear layer disposed between the first and second structural members when the first structural member is received within the second structural member, the shear layer absorbs at least a portion of the vibrational energy transmitted from the surface to the shoe portion when the skate traverses the surface.

12. The skate frame of Claim 10, wherein the sidewalls of the first structural member extend to the lower end of the arcuate cross sectional shape of the second structural member.

13. The skate frame of Claim 12, further comprising rectangular first and second wheel attachment flanges depending downwardly from the lower ends of the arcuate cross sectional shape of the second structural member, wherein the wheels are journaled to the wheel attachment flanges to increase the vibration energy absorption by isolating the wheels from the first structural member.

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a37* 14. A skate frame for an in-line skate, the skate having a shoe portion and a plurality of wheels capable of traversing a surface, the skate frame comprising:

(a) an elongate first structural member having downwardly depending first and second sidewalls, the lower ends of the sidewalls being spaced to receive the wheels therebetween;

(b) an elongate second structural member having downwardly depending first and second sidewalls, the sidewalls of the second structural member being spaced to receive the first structural member therebetween, such that the sidewalls of the second structural member overlap at least a portion of the sidewalls of the first structural member; and

(c) a vibration dampening member integrally formed with the sidewalls of the first and second structural members for reducing the amount of vibrational energy transmitted from the surface to the shoe portion when the skate traverses the surface.

15. The skate frame of Claim 14, wherein the vibration dampening member comprises contouring the sidewalls of both the first and second structural members to a predetermined cross sectional shape to permit the sidewalls to flex, thereby absorbing at least a portion of the vibrational energy associated with traversing the surface.

16. The skate frame of Claim 15, wherein the cross sectional shape of the sidewalls of the first and second structural members is substantially arcuate, such that the arcuate cross sectional shape of the sidewalls flexes to absorb at least a portion of the vibrational energy, wherein the arcuate cross sectional shape of the first and second sidewalls of the first and second structural members is substantially C-shaped in configuration, the arcuate cross section of each sidewall has an upper end spaced from a lower end by a concave portion.

17. The skate frame of Claim 16, further comprising an elastomeric shear layer disposed between the first and second structural members when the first structural member is received within the second structural member, the shear layer absorbs at least a portion of the vibrational energy transmitted from the surface to the shoe portion when the skate traverses the surface.

18. The skate frame of Claim 17, wherein the sidewalls of the first structural member extend to the lower end of the arcuate cross sectional shape of the second structural member.

19. The skate frame of Claim 18, further comprising rectangular first and second wheel attachment flanges depending downwardly from the lower ends of the arcuate cross sectional shape of the second structural member, the wheels are journaled to the wheel attachment flanges to increase the vibration energy absorption by isolating the wheels from the first structural member.

Sub B7 20. A skate frame for an in-line skate, the skate having a shoe portion and a plurality of longitudinally aligned wheels capable of traversing a surface, the skate frame comprising:

(a) an elongate carrier frame having first and second sidewalls held in spaced parallel disposition by a first upper wall and an open lower end spaced to receive the wheels therebetween; and

(b) an elongate outer shell having first and second sidewalls and an open lower end, the sidewalls of the outer shell being spaced to receive the carrier frame therebetween such that the sidewalls of the outer shell overlap at least a portion of the sidewalls of the carrier frame, the sidewalls of the carrier frame and the outer shell having a predetermined cross sectional shape to permit the sidewalls to flex, thereby absorbing at least a portion of the vibrational energy transmitted from the surface to the shoe portion when the skate traverses the surface.

21. The skate frame of Claim 20, wherein the cross sectional shape of the sidewalls of the carrier frame and the outer shell is substantially arcuate, such that the arcuate cross sectional shape of the sidewalls flexes to absorb at least a portion of the vibrational energy, wherein the arcuate cross sectional shape of first and second sidewalls of the carrier frame and the outer shell is substantially C-shaped in

configuration, the arcuate cross section of each sidewall has an upper end spaced from a lower end by a concave portion.

22. The skate frame of Claim 20, further comprising an elastomeric shear layer disposed between the carrier frame and the outer shell when the carrier frame is received within the outer shell, the shear layer absorbs at least a portion of the vibrational energy transmitted from the surface to the shoe portion when the skate traverses the surface.

23. The skate frame of Claim 21, further comprising an elastomeric shear layer disposed between the carrier frame and the outer shell when the carrier frame is received within the outer shell, the shear layer absorbs at least a portion of the vibrational energy transmitted from the surface to the shoe portion when the skate traverses the surface.

Sub B24. 24. The skate frame of Claim 23, wherein the sidewalls of the first structural member extend to the lower end of the arcuate cross sectional shape of the second structural member.

25. The skate frame of Claim 24, further comprising rectangular first and second wheel attachment flanges depending downwardly from the lower ends of the arcuate cross sectional shape of the carrier frame, the wheels are journaled to the wheel attachment flanges to increase the vibration energy absorption by isolating the wheels from the outer shell.

26. A skate frame for an in-line skate, the skate having a shoe portion and a plurality of longitudinally aligned wheels capable of traversing a surface, the skate frame comprising:

(a) an elongate outer shell having first and second sidewalls and an open lower end;

(b) an elongate carrier frame having first and second sidewalls, the sidewalls of the outer shell are spaced to receive the carrier frame therebetween such that the sidewalls of the outer shell overlap at least a portion of the sidewalls of the carrier frame; and

(c) an elastomeric shear layer disposed between the carrier frame and the outer shell to absorb at least a portion of the vibrational energy transmitted from the surface to the shoe portion when the skate traverses the surface.

27. The skate frame of Claim 26, wherein the carrier frame further comprises a first upper wall and an open lower end spaced to receive the wheels therebetween.

28. The skate frame of Claim 27, wherein the sidewalls of the carrier frame and the outer shell having a predetermined cross sectional shape to permit the sidewalls to flex, thereby absorbing at least a portion of the vibrational energy transmitted from the surface to the shoe portion when the skate traverses the surface.

29. The skate frame of Claim 28, wherein the cross sectional shape of the sidewalls of the carrier frame and the outer shell is substantially arcuate, such that the arcuate cross sectional shape of the sidewalls flexes to absorb at least a portion of the vibrational energy, wherein the arcuate cross sectional shape of first and second sidewalls of the carrier frame and the outer shell is substantially C-shaped in configuration, the arcuate cross section of each sidewall has an upper end spaced from a lower end by a concave portion.

30. The skate frame of Claim 26, wherein the shoe portion is attached to the outer shell of the skate frame by an attachment bolt extending through the outer shell without contacting either the carrier frame or the elastomeric layer to limit the amount of vibrational energy transmitted to the shoe portion.

31. The skate frame of Claim 30, wherein the wheels are attached to the carrier frame to further limit the amount of vibrational energy transmitted to the shoe portion.

32. The skate frame of Claim 26 comprising a gap extending between the outer shell and the carrier frame to absorb at least a portion of the vibrational energy transmitted to the shoe portion.

33. A method of constructing a vibration dampening skate frame for a skate having a shoe portion and a plurality of longitudinally aligned wheels capable of traversing a surface, the method comprising:

(a) providing a tubular carrier frame having first and second sidewalls, a perimeter outer surface, and a perimeter inner surface;

(b) contouring the cross sectional shape of the carrier frame to permit the sidewalls of the carrier frame to flex, thereby absorbing at least a portion

of vibrational energy transmitted from the surface to the shoe portion when the skate traverses the surface;

(c) providing a tubular outer shell having first and second sidewalls, a perimeter outer surface, and a perimeter inner surface;

(d) contouring the cross sectional shape of the outer shell to permit the sidewalls of the outer shell to flex, thereby absorbing at least a portion of vibrational energy transmitted from the surface to the shoe portion when the skate traverses the surface;

(e) applying an elastomeric shear layer to the outer surface of the carrier frame; and

(f) placing the carrier frame within the outer shell such that the shear layer is sandwiched between the outer shell and carrier frame to absorb at least a portion of vibrational energy transmitted from the surface to the shoe portion when the skate traverses the surface.

34. A method of constructing a vibration dampening skate frame for a skate having a shoe portion and a plurality of longitudinally aligned wheels capable of traversing a surface, the method comprising the steps of:

(a) forming a first structural member into a carrier frame having first and second sidewalls, an upper end, a lower end, a perimeter outer surface, and a perimeter inner surface;

(b) forming a second structural member into an outer shell having first and second sidewalls, an upper end, a lower end, a perimeter outer surface, and a perimeter inner surface;

(c) integrally forming a vibration dampening member with the sidewalls of both the carrier frame and the outer shell to absorb at least a portion of vibrational energy transmitted from the surface to the shoe portion; and

(d) inserting the carrier frame into the outer shell such that the vibration dampening member is positioned between the upper and lower ends thereof to absorb at least a portion of the vibrational energy transmitted from the surface to the shoe portion as the skate traverses the surface.